

REMARKS

The Office Action dated November 24, 2009 has been reviewed and carefully considered. Claims 21-23 are added. Claims 13, 14 and 18 are canceled without prejudice to keep the total number of claims at 20. Claims 1-12, 15-17, and 19-23 are pending. The independent claims remain 1, 9, 15, 16 and 20. Claims 1 and 19 are amended. Independent claims 9, 15, 16 and 20 are not amended.

Reconsideration of the application, as amended and in view of the following remarks, is respectfully requested.

Objection to the Specification

The Office Action objects to the formatting of the specification, and offers suggestions for changing the format.

Applicant makes a slight rewording of the abstract to improve readability.

Applicant otherwise respectfully declines to make the modifications. They are not required under MPEP §608.01(a). In particular and by way of example, 37 CFR 1.77(a) uses the word “should” instead of the word “must.”

The Office Action incorrectly requires an abstract on a separate page, and cites to 37 CFR 1.72(b).

However, a separate sheet for the abstract was submitted, along with the rest of the application, by the International Bureau. See Transmittal of New Application, dated 03/29/05, item 5(b).

Reconsideration and withdrawal of the objection is respectfully requested.

Objections to the Claims

The Office Action incorrectly objects to the claims under 37 CFR 1.52(b)2(i), which requires that the claims be spaced line-wise by 1 ½ or by 2 lines.

The specification, as filed, spaces the lines in the claims by 1 ½ lines. This and the previous Office Action reply space the lines in the claims by 2 lines. For at least these reasons, the objection is invalid.

The Office Action also incorrectly suggests that the font size is too small.

However, the font in the application as filed, and in the replies, is Times New Roman 12.

Reconsideration and withdrawal of the objection is respectfully requested.

The Office Action incorrectly objects to the dependence of claim 10 from claim 15.

The following procedures are to be followed by examiners when faced with claims which refer to numerically succeeding claims:

If any series of dependent claims contains a claim with an improper reference to a numerically following claim which cannot be understood, the claim referring to a following claim should normally be objected to and not treated on the merits.

However, in situations where a claim refers to a numerically following claim and the dependency is clear, both as presented and as it will be renumbered at issue, all claims should be examined on the merits and no objection as to form need be made. In such cases, the examiner will renumber the claims into proper order at the time the application is allowed. MPEP 608.01(n)I(f).

As to claim 10, its dependency from claim 15 “is clear.”

For at least this reason, the objection to claim 10 is not proper.

Reconsideration and withdrawal of the objection is respectfully requested.

Rejections of the Claims

Claim 19 stands rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.

Dependent claim 19 is amended for prosecution efficiency and not for any reason related to patentability.

The Office Action incorrectly suggests that claim 19 lacks function and is not in a statutory class.

Claim 19, as rejected, recited, “An article of manufacture, comprising a machine-accessible medium having instructions encoded thereon for enabling a processor to perform the method of claim 1.”

The excerpt from the Interim Guidelines, which is reproduced in the Office Action, states, starting from the first sentence in the second paragraph:

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. . . . a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program’s functionality to be realized, and is thus statutory.

In claim 19, use of technology, e.g., the “processor” and “machine-accessible medium,” permits the function of the descriptive material, the “instructions,” to be realized. A claimed machine-accessible medium “having instructions encoded thereon

for enabling a processor to perform the method of claim 1” is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program’s functionality to be realized, and is thus statutory. Accordingly, claim 19 is statutory with regard to function.

Nevertheless, to facilitate prosecution, claim 19 is now amended to substitute the phrase “computer-readable” for “machine-accessible.” Support for this amendment is found in the specification (e.g., page 8, lines 9-25; page 11, lines 4-16).

As a result of this amendment, claim 19 remains statutory as to function.

With regard to statutory class, the United States Court of Appeals for the Federal Circuit (CAFC) has stated, “. . . These definitions address ‘articles’ of ‘manufacture’ as being tangible articles or commodities. A transient electric or electromagnetic transmission does not fit within that definition. . . . Thus, we hold that Nuijten’s signals, standing alone, are not ‘manufacture[s]’ under the meaning of that term in § 101.” In re Nuijten, 2006-1371 (Serial No. 09/211928), pages 17-18.

It follows that a claim explicitly directed to an “article of manufacture” is within a statutory class in accordance with § 101.

At least because claim 19 recites, “[a]n article of manufacture,” claim 19 is within a statutory class.

The Office Action incorrectly suggests that the claimed “article of manufacture” is merely a “transitory signal” or that claim 19 can be seen as reading on merely a transitory signal.

This interpretation by the Office Action, however, contradicts what the CAFC has said in the quotation above from In re Nuijten.

According to the above discussion, claim 19 is statutory.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 20 stands rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.

The Office Action incorrectly suggests that claim 20 does not recite a “computer-readable medium.”

However, claim 20 recites, “said product comprising a computer readable medium.” For at least this reason, the rejection of claim 20 is invalid.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 15-18 and 20 stand rejected under 35 USC 112, 1st paragraph, as failing to comply with the written description requirement. The Office Action incorrectly suggests that the inventor did not have possession of the claimed invention.

Claim 15 recites, “a binning factor of unity or greater.”

The Office Action agrees that the specification discloses “a binning factor of unity,” but incorrectly suggests that the specification fails to disclose “a binning factor of unity or greater.”

A binning factor greater than unity is disclosed in the specification (e.g., page 1, lines 21-24; page 2, lines 11-16; page 6, lines 11-16; page 7, lines 7-12).

One skilled in the art can reasonably conclude that the inventor had possession of the claimed invention, and the written description requirement is thus fulfilled. See

MPEP §2163(I), second paragraph, first sentence. No new matter is added by virtue of claim 15.

For at least these reasons, the rejection of claim 15 lacks validity.

Reconsideration and withdrawal of the rejection is respectfully requested.

The Office Action incorrectly rejects claims 16-18 and 20 on account of their reciting the same phrase “a binning factor of unity or greater” or due to their dependency from claim 15.

One skilled in the art can reasonably conclude that the inventor had possession of the claimed invention, and the written description requirement is thus fulfilled. See MPEP §2163(I), second paragraph, first sentence. No new matter is added by virtue of claims 16-18 and 20.

Reconsideration and withdrawal of the rejection is respectfully requested.

The Office Action incorrectly rejects claim 19 under 35 USC 112, 1st paragraph, as failing to comply with the written description requirement. The Office Action incorrectly suggests that the inventor did not have possession of the claimed invention.

Written description is afforded in the specification (e.g., page 1, lines 13-26; page 2, lines 16-32; page 8, line 10 to page 9, line 8; page 11, lines 4-16). One skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. Accordingly, the rejection is invalid.

Reconsideration and withdrawal of the rejection is respectfully requested.

REJECTION OVER BOOYSEN IN VIEW OF KARUNEN

Claims 1-6, 8-14 and 19 stand rejected under 35 U.S.C. 103(a) as unpatentable over Booyesen et al. (US 6921200) (“Booyesen”) in view of Karunen et al. (US 20030151683) (“Karunen”).

Since claims 13 and 14 are canceled, the rejection is moot as to claims 13 and 14.

Claim 1, as amended, recites, “. . . the location of said sub-region within said field being unique. . .” Support for the amendment of claim 1 is found in the specification (e.g., page 2, lines 16-26).

The Office Action equates the “sub-region” of claim 1 to the Booyesen “smallest binned super pixel,” (Office Action, item 1, second and third paragraphs), which does not have a single, unique location. Instead, the Booyesen “smallest binned super pixel” is a pixel binning configuration or pattern that, when applied, is repeated throughout the whole CCD array.

Karunen splits up a few isolated Booyesen pixels into smaller groupings, based on the location of defected pixels.

Karunen does not render Booyesen within claim 1, at least because the Booyesen preset parameter, i.e., the Booyesen “smallest binned super pixel,” remains the same under Booyesen/Karunen.

For at least the above reasons, the applied references do not anticipate or render obvious the present invention as recited in claim 1.

Claim 9 recites:

the imaging device being configured to enable presetting of at least one parameter in order to define a sub-region of the field, and further

configured for deriving any remaining parameters for the defining the sub-region as well as a binning factor b and an imaging rate f, said deriving being performed, in view of the at least one preset parameter, in such a manner that the maximum rate G_{\max} of the evaluation unit is not exceeded during the reading out of all pixel signals from the sub-region.

To the Applicant's best understanding, the Office Action appears to suggest that the "at least one parameter" and "binning factor b" of claim 9 correspond to the Booyesen smallest binned super pixel and the Karunen "preliminary binning factor."

The Office Action seemingly fails to identify or even mention disclosure or suggestion of the claim 9 feature "the imaging device being . . . configured for deriving any remaining parameters for defining the sub-region . . ."

Nor does the Office Action even offer any hint of what the Office Action deems to correspond in the references, alone or in combination, to the "any remaining parameters for defining the sub-region."

The closest the Office Action seems to come to commenting on this is to state that the Booyesen smallest binned super pixel is the "sub-region" of claim 9, (see Office Action, item 8 and the third paragraph, next-to-last sentence of item 1), "which is a 2x2 binned pixel" (Booyesen, col. 7, line 65).

So, if the Office Action regards the number 2 as being "the at least one parameter" of claim 9, it is unclear to Applicant what feature of Booyesen/Karunen the Office Action deems to correspond to the claim 9 language "any remaining parameters for defining the sub-region."

The Board of Patent Appeals and Interferences (BPAI) is repeatedly citing *KSR Int'l v. Teleflex, Inc.*, 127 S. Ct. 1727, 82 USPQ2d 1385 (2007) as it, in turn, cited In re Kahn.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006) cited with approval in KSR, 550 U.S. at ___, 82 USPQ2d at 1396) MPEP 2141(III), fifth paragraph, next-to-last sentence.

The Office Action fails to provide articulated reasoning for its suggestion of obviousness.

For at least the above reasons, the proposed combination of references fails to anticipate or render obvious the invention recited in claim 9.

Reconsideration and withdrawal of the rejection is respectfully requested.

As mentioned above in the claim objection section of this reply, the Office Action incorrectly assumes that claim 10 depends from claim 9, rather than from claim 15. Accordingly Applicant's remarks directed to the rejection of claim 10 appear further below, in the discussion relating to the rejection of claim 15.

Claims 2-6, 8, 11, 12 and 19 depend from their respective base claims, which have been shown to be patentable, and are likewise deemed to be patentable at least due to their respective dependencies.

Moreover, each dependent claim recites an additional aspect of the invention, and consequently warrants further consideration based on its individual merits.

For example, with respect to claim 6, the Booyesen/Karunen sub-region is apparently the smallest, i.e., 2x2, binned super pixel of a CCD.

The Office Action refers to Booyesen FIG. 16, but the corresponding corrections are applied to Booyesen pixels of the CCD irrespective of what the smallest binned super pixel is. See Booyesen, col. 10, line 28(29) to col. 12, line 17.

It is, for at least the foregoing reasons, unclear in what sense the Office Action regards “the evaluation of the pixel signals being performed by means of calibration images” as being “related to the sub-region.”

As a further example, with regard to claim 11, item 10 of the Office Action recites the claim 11 language “said any remaining parameters amount to one or more parameters,” but offers no further guidance on what in the applied references, alone or in combination, the Office Action regards as corresponding to this language.

Reconsideration and withdrawal of the rejection is respectfully requested.

REJECTION OVER BOOYSEN IN VIEW OF KARUNEN AND JALINK

Claim 7 stands rejected under 35 U.S.C. 103(a) as unpatentable over Booyesen in view of Karunen and Jalink et al. (US 5844242) (“Jalink”).

Claim 7 depends indirectly from independent claim 1. As discussed above, claim 1 is deemed allowable because Booyesen and Karunen do not teach or suggest all of the limitations of that claim. Jalink fails to make up for the stated shortcomings of Booyesen and Karunen. Therefore, claim 7 is deemed patentable at least due to its dependency on allowable claim 1.

In addition, claim 7 recites, “. . . calibration images for an arbitrary new sub-region are acquired from the overall calibration images.”

The first paragraph in item 15 of the Office Action acknowledges that Booysen fails to disclose or suggest this feature of claim 7, but the Office Action offers no further guidance on how the Office Action deems the other applied references to, alone or in combination, make up the difference.

Applicant is unable to find this feature in any of the references, alone or in combination.

For at least the foregoing reasons, the prior art of record, alone or in combination, fails to render obvious the present invention as recited in claim 7.

Reconsideration and withdrawal of the rejection is respectfully requested.

REJECTION OVER BOOYSEN IN VIEW OF KARUNEN AND SHIPP

Claims 15-18 and 20 stand rejected under 35 U.S.C. 103(a) as unpatentable over Booysen in view of Karunen and Shipp (US 5,394,187).

As to claim 15, it recites:

An imaging device comprising: a two-dimensional field of image sensors, said field being divided into pixels for outputting pixel signals representing output signals of said image sensors combined by a binning operation at a binning factor of unity or greater; and an evaluation unit configured for, at a maximum rate of no more than G_{max} , reading out and processing said pixel signals, said imaging device being configured to enable presetting of at least one parameter in order to define a sub-region of said field, said sub-region comprising less than all of said field, but a plurality of said pixels, said imaging device being further configured for, based on said at least one preset parameter and on said maximum rate G_{max} , deriving a) any parameters for defining the sub-region that were not preset in said presetting, b) said binning factor, and c) an imaging rate.

In trying to determine how or in what manner the Office Action deems the claim 15 feature “at least one parameter” to correspond to Booyesen/Karunen, Applicant has referred first to item 16. Starting from there, reference is ultimately made to an item in the Office Action that discusses claim 1. Claim 1 also recites the feature “at least one parameter.”

As mentioned hereinabove with respect to claim 1, item 1 of the Office Action characterizes the claim 1 feature “at least one parameter” as corresponding to the Booyesen “smallest binned super pixel.”

Accordingly, it might be assumed that the Office Action deems the claim 15 feature “at least one parameter” to, likewise, correspond to the Booyesen “smallest binned super pixel.”

However, the Office Action makes this far from clear.

In particular, item 9 of the Office Action, which discusses claim 10 (for which claim 15 is the parent claim), equates the claim 10 feature “at least one adjustment parameter” to the Booyesen X-ray beam width (col. 5, line 36).

Referring to claim 10, this interpretation implies that the Booyesen X-ray beam width is among the “at least one parameter” of parent claim 15.

This, in turn, means that the Booyesen X-ray beam width is set “in order to define” the claim 15 “sub-region.”

However, if beam width is set “to define” the claim 15 “sub-region,” this would seemingly suggest that the claim 15 “sub-region” does not equate to the Booyesen smallest

binned super pixel but instead to something akin to the area in which the Booysen cameras are activated for exposure from the Booysen X-ray (col. 7, lines 13-15).

Claim 15 then goes on to recite, “said imaging device being further configured for, based on said at least one preset parameter (i.e., the Booysen X-ray beam width) and on said maximum rate G_{\max} (i.e., the Booysen “data rate” (see Office Action, item 1)), deriving a) any parameters for defining the sub-region that were not preset in said presetting, b) said binning factor, and c) an imaging rate” (the parenthetic remarks above having been added to compare the claim to the combination of references the Office Action proposes).

It is unclear to Applicant what in the applied references, alone or in combination, corresponds to the “deriving,” and to the “any parameters for defining the sub-region that were not preset in said presetting,” the “binning factor,” and the “imaging rate.”

It is also unclear to Applicant by what reasoning it properly could be suggested that the latter three values were all derived, by the imaging device, “based on said at least one preset parameter (i.e., the Booysen X-ray beam width) and on said maximum rate G_{\max} (i.e., the Booysen “data rate” (see Office Action, item 1)) (the parenthetic remarks above having been added to compare the claim to the combination of references the Office Action proposes).

If, on the other hand, the Office Action considers the “sub-region” of claim 15 as corresponding not to the Booysen X-ray exposure area but instead to “the Booysen smallest binned super pixel,” this not only contradicts item 9 of the Office Action but seemingly fails to make sense.

The Booysen super pixel is a combination of Booysen pixels. Each Booysen pixel has its respective well, (Booyesen, col. 7, lines 21-66), and corresponds to the “image sensor” of claim 15.

Claim 15 provides that “said sub-region” comprises “a plurality of said pixels.”

Referring to earlier in claim 15, it recites, “An imaging device comprising: a two-dimensional field of image sensors, said field being divided into pixels for outputting pixel signals representing output signals of said image sensors combined by a binning operation at a binning factor . . .”

It would not make sense for a “field of image sensors” to be divided into “image sensors;” instead, “said field” is “divided into pixels for outputting pixel signals representing output signals of said image sensors combined by a binning operation at a binning factor . . .”

So, the “pixel” of claim 15 corresponds to the Booysen “super pixel.”

However, claim 15 provides that “said sub-region” comprises “a plurality of said pixels;” accordingly, regarding the “sub-region” of claim 15 as corresponding to “the Booysen smallest binned super pixel” would not make sense.

Thus, whether the Office Action equates the claim 15 “sub-region” to the Booysen X-ray exposure area or to the Booysen “smallest binned super pixel,” such an interpretation by the Office Action does not make sense.

Also, Applicant is unable to find, in the references applied and in what was generally known to one of ordinary skill in the art, disclosure or suggestion of “a binning factor of unity or greater.”

The Office Action cites to U.S. Patent No. 5,394,187 to Shipp, but lines 44-46 within the passage the Office Action cites suggest “2x2” binning is the minimum binning.

Thus, “a binning factor of unity or greater” as in claim 15 is not disclosed or suggested.

It is, for at least the above reasons, unclear by what reasoning the applied references, alone or in combination, could properly be construed as disclosing or rendering obvious the “imaging device” of claim 15, which has a “binning factor of unity or greater, . . . said imaging device being configured to enable presetting of at least one parameter in order to define a sub-region of said field, said sub-region comprising . . . a plurality of said pixels, . . . said imaging device being further configured for, based on said at least one preset parameter and on said maximum rate G_{max} , deriving a) any parameters for defining the sub-region that were not preset in said presetting, b) said binning factor, and c) an imaging rate.”

Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 10 depends from and includes all the limitations of claim 15, and is deemed to be patentable over the references applied to claim 15 for at least the same reasons set forth above with regard to claim 15.

Claim 16 is a method claim analogous to apparatus claim 15 and is deemed to be patentable over the applied references for at least the reasons set forth above with regard to claim 15. The only difference between the respective discussions of claim 15 and 16 further above in these remarks is that claim 15 recites, “said field being divided into,” while claim 16 recites, “said field being dividable into.”

Claim 17 depends from, and includes all the limitations of, claim 16 and is therefore deemed patentable over the applied references at least due to its dependency.

In addition, claim 17 recites, “said parameters for defining the sub-region that were not preset in said presetting amount to one or more parameters.”

Applicant does not see how the applied references, alone or in combination, feature, disclose or suggest claim 17 or even the language particular to dependent claim 17.

The Office Action offers no further guidance on the basis for the rejection of claim 17 other than to refer to item 16, which discusses claim 15. Although claim 17 does not depend from claim 15, it was hoped that some insight could nevertheless be gained from the discussion at item 16. As it turns out, Applicant fails to see any commentary at item 16 that bears on the specific language of claim 17.

Claim 18 is canceled. The rejection is thus moot as to claim 18.

As to claim 20, it recites:

presetting at least one parameter in order to define a sub-region of the field, said sub-region comprising less than all of said field, but a plurality of said pixels; and based on said at least one preset parameter and on said maximum rate G_{max} , deriving, by said imaging device, a) any parameters for defining the sub-region that were not preset in said presetting, b) said binning factor, c) an imaging rate

At least due to the similarity between the language of claims 15 and 20, claim 20 is deemed to be patentable over the applied references for at least the same reasons given above with regard to claim 15.

Reconsideration and withdrawal of the rejection is respectfully requested.

NEW CLAIMS

Support for new dependent claims 21 and 23 is found in the specification, (e.g., page 2, lines 16-28).

Support for new dependent claim 22 is found in the specification (e.g., page 2, lines 16-26).

CONCLUSION

In view of the above, it is respectfully submitted that the present application is in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

The Director is hereby authorized to charge any fee which may be required, or credit any overpayment, to Deposit Account No. 14-1270.

Respectfully submitted,

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